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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,214	10/05/2005	Takashi Shinriki	1716422	2307
24240	7590	10/06/2006		
CHAPMAN AND CUTLER 111 WEST MONROE STREET CHICAGO, IL 60603			EXAMINER SONG, SARAH U	
			ART UNIT 2874	PAPER NUMBER

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/527,214	SHINRIKI ET AL.	
	Examiner	Art Unit	
	Sarah Song	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on October 17, 2005 have all been considered and made of record (note the attached copy of form PTO-1449).

Specification

3. The disclosure is objected to because of the following informalities: Examiner suggests deleting any references to specific claim numbers from the specification, as the original claim numbers may not necessarily correspond to the published claim numbers in a granted patent.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 10-12, 16, 18-20, 25, 26, 30, 31, 35 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Doi et al. (U.S. Patent Application Publication 2002/0146190).**

Art Unit: 2874

6. Regarding claims 10-12, 20, Doi et al. discloses an optical modulator comprising a substrate 1A consisting of a material having an electrooptic effect, an optical waveguide 5 provided on the substrate, control electrodes 7 for controlling a phase of light being guided through said optical waveguide, and a recess 14b-2 in a surface of said substrate, one of said control electrodes being formed on said recess, wherein the control electrode formed on said recess is thinned, thus inherently providing a stress relaxing means. The stress relaxing means comprises a configuration of said electrode on the recess being thinner than the control electrodes on non-recess portions of said surface of said substrate and thinner than a depth of said recess. See Figure 1 and ¶0078.

7. Regarding claims 16, 25, 26, the stress relaxing means comprises formation of said control electrode on the recess in a shape of a stripe. See Figure 3.

8. Regarding claims 18 and 19, the substrate comprises a direction of a crystal axis capable of changing a refractive index in a direction vertical to the substrate surface by electrooptic effect (Z-cut, ¶0078).

9. Regarding claims 35 and 36, the control electrode provided with said stress relaxing means is a grounding electrode (¶0128).

10. **Claims 10, 15, 29 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Doi et al. (U.S. Patent 6,801,675).**

11. Regarding claims 10 and 15, Doi et al. discloses an optical modulator comprising a substrate 1A consisting of a material having an electrooptic effect, an optical waveguide 6B provided on the substrate, control electrodes 7 for controlling a phase of light being guided through said optical waveguide, and a recess 13-1 in a surface of said substrate, one of said

Art Unit: 2874

control electrodes creates a space between the substrate surface where said recess is formed and said control electrode on said recess, thus inherently providing a stress relaxing means.

12. Regarding claim 29, the stress relaxing means comprises formation of said control electrode on the recess in a shape of a stripe. See Figure 2.

13. Regarding claim 34, the substrate comprises a direction of a crystal axis capable of changing a refractive index in a direction vertical to the substrate surface by electrooptic effect (Z-cut, column 2, lines 44-46).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 14, 23, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al. (U.S. Patent Application Publication 2002/0146190). Regarding claims 14, 23, 28 and 33, Doi et al. discloses the claimed invention as discussed above, but does not expressly disclose the thickness of the electrode in the recess to be 30000 to 500Å. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the electrode thickness in the recess to be 30000 to 500Å since it has been held that where the general conditions of a claim are disclosed by the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See MPEP 2144.05(II)(A).

Allowable Subject Matter

16. Claims 13, 17, 21, 22, 24, 27, 32 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or reasonably suggest the stress relaxing means comprising a percentage of voids in a range of 10 to 90 percent as recited in claims 13, 21 and 22, or a thin line for connecting the control electrodes formed on non-recess portions of said surface of said substrate next to said recess as recited in claim 17. Claims 24, 27, 32 and 37 would be allowable by virtue of dependency on claim 13.

Conclusion

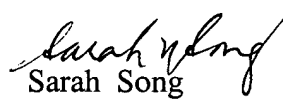
18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

Art Unit: 2874

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Sarah Song
Primary Examiner
Art Unit 2874